REMARKS

The Office action mailed 12 August 2004, has been received and its contents carefully noted. The pending claims, claims 17-46, were rejected. By this amendment, claims 17 and 25 have been amended. Specifically, claims 17 and 25 have been amended to clarify that the deglycosylated ricin A-chain lacking about 50% of the mannose and most fucose residues present on the wild-type ricin toxin A-chain. Claims 19-20, 36-27 and 41-43 have been canceled as they contain subject matter redundant to the claims as amended. Support may be found in the specification and the claims as originally filed, see for example, pages 7-8 of the specification. No statutory new matter has been added. Therefore, reconsideration and entry of the claims as amended is respectfully requested.

Rejection under 35 U.S.C. 112, first paragraph

The Examiner rejected claims 19-20, 26-27 and 41 under 35 U.S.C. 112, first paragraph, as lacking written description support. Specifically, the Examiner deemed that "incompletely deglycosylated" did not have support in the specification. However, the Examiner indicated that lacking "about 50% of the mannose and most [fucose] residues present on the RTA" does have written description support.

Applicants have amended the claims such that the ricin toxin A-chain recited in the claims lack "about 50% of the mannose and most fucose residues present on the wild-type ricin toxin A-chain". As pointed out by the Examiner, written description support may be found throughout the specification, see for example, pages 7-8.

Therefore, Applicants respectfully assert that the claims as amended are enabled and the rejection under 35 U.S.C. 112, first paragraph, should properly be withdrawn.

Rejection under 35 U.S.C. 102(b)

The Examiner rejected claims 17, 21-25, 40, 42, and 44-46 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,453,271 ('271 patent). Specifically, the Examiner deemed that "the claims do not recite the chemical used to deglycosylate the ricin A chain and therefore read upon all chemicals, including those that may completely deglycosylate ricin A chain" and therefore "the 'chemically deglycosylated" ricin A chain would be identical to the recombinant

ricin A chain of the '271 patent".

Applicants acknowledge that the Examiner analyzed and interpreted the scope of "chemically deglycosylated ricin A-chain" as including "any degree of deglycosylation of the ricin A-chain up to and including complete lack of mannose and fucose residues". Applicants have now amended the claims such that "chemically deglycosylated ricin A-chain" is a ricin A-chain "lacking about 50% of the mannose and most fucose residues present on the wild-type ricin toxin A-chain".

Applicants note that in the rejection, the Examiner did not indicate that former claim 20 (as well as claims 18 and 19) was anticipated by the '271 patent. Applicants respectfully submit that the broadest claims as now pending include the limitations of claim 20. Therefore, the claims as amended are not anticipated by the '271 patent. Further, Applicants respectfully submit that nowhere in the '271 patent is a ricin toxin A-chain taught or suggested that lacks "about 50% of the mannose and most fucose residues present on the wild-type ricin toxin A-chain". Therefore, the rejection under 35 U.S.C. 102(b) should properly be withdrawn.

Objection to the Specification

The Examiner objected to the specification for misspelling "fructose".

As amended herein, Applicants believe that all misspellings have been found and alleviated. Therefore, the objection to the specification may properly be withdrawn.

Rejection under 35 U.S.C. 112, second paragraph

The Examiner rejected claims 18 and 27 under 35 U.S.C. 112, second paragraph, as being indefinite. Specifically, the Examiner indicated that claim 18 was unclear as it was dependent upon a canceled claim and claim 27 improperly recited "fructose".

Applicants respectfully submit that the claims as amended render the rejection under 35 U.S.C. 112, second paragraph, moot. Therefore, the rejection under 35 U.S.C. 112, second paragraph, should properly be withdrawn.

Rejection under 35 U.S.C. 102(b)

The Examiner rejected claims 17-46 under 35 U.S.C. 102(b) as being anticipated by Thorpe et al. Specifically, the Examiner indicated that "Thorpe teaches that the level of deglycosylation was dependent upon the incubation time and a maximum of 13 out of the total 18 mannose residues were destroyed" and that although Thorpe is silent as to the production of ricin-reactive antibodies, "Thorpe teaches administration of ricin A chain that has been incompletely deglycosylated".

Applicants respectfully point out that Thorpe et al. does not teach each and every element of the present invention as claimed. Thorpe et al. does not specifically teach deglycosylation of RTA such that it lacks about 50% of mannose and most fucose residues of wild-type RTA. In fact, Thorpe et al. merely indicates that *up to* 13 of the 18 mannose residues are destroyed. Thus, Thorpe et al. only teaches that *up to about 72%* of the mannose residues can be destroyed. However, Thorpe et al. does not teach the significance of an RTA lacking about 50% mannose residues. Thorpe et al. does not teach that an RTA lacking about 50% mannose residues may be used to induce ricin reactive protective antibodies.

In fact, Thorpe et al. discloses that the deglycosylated ricin A chain as provided therein was found to *increase* toxicity in subjects by *up to fourfold*. Thus, Thorpe et al. actually teaches away from using the Thorpe et al. deglycosylated RTA to induce ricin reactive protective antibodies in subjects as the Thorpe et al. deglycosylated RTA has a significant increase in toxicity.

The present specification teaches that deglycosylated RTA that lacks about 50% of mannose residues exhibits 0% mortality. See page 42. It should be noted that the deglycosylated RTA lacking about 50% of the mannose residues according to the present invention prevented the lethal effect of aerosolized ricin toxin as well as reduced lung injury. See page 48. Nowhere does Thorpe et al. disclose such a deglycosylated RTA. The present specification teaches that the high antibody titer induced by the deglycosylated RTA lacking about 50% mannose residues results in the induction of a mean ELISA antibody titer of about 1×10^2 mg/ml or more against ricin toxin in a subject which prevents death from ricin toxin exposure. Nowhere does Thorpe et al. teach or suggest inducing such a mean antibody titer by a deglycosylated RTA lacking about 50% mannose residues.

It should also be noted that Thorpe et al. is focused on developing immunotoxins for therapies such as targeted cell specific chemotherapeutics. Such immunotoxins become ineffective where the subject develops antibodies against the immunotoxins. Therefore, one would not be motivated to modify the Thorpe et al. deglycosylated RTA to lack about 50% of the mannose residues as it would render it unsuited for its intended purpose.

Clearly, Thorpe et al. does not teach or suggest the claimed methods of the present invention, i.e. methods of inducing a mean ELISA antibody titer of about 1×10^2 mg/ml or more against ricin toxin in a subject and methods for providing neutralizing antibodies against ricin toxin or preventing ricin intoxication in a subject which comprise administering to the subject an amount of a chemically deglycosylated ricin A-chain lacking about 50% of the mannose and most fucose residues present on the wild-type ricin toxin A-chain. Therefore, the rejection under 35 U.S.C. 102(b) should properly be withdrawn.

Request for Interview

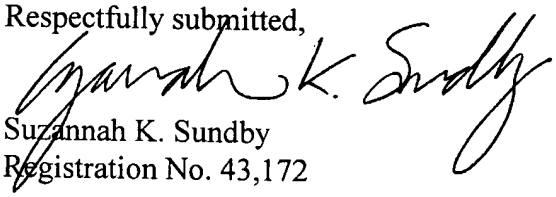
Applicants respectfully request either a telephonic or an in-person interview should there be any remaining issues.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefor are hereby authorized to be charged to **Deposit Account No. 210-380,** Attorney Docket No. **034047.0041 (RIID 99-12A)**.

Respectfully submitted,



Suzannah K. Sundby
Registration No. 43,172

Date: 12 November 2004
SMITH, GAMBRELL & RUSSELL, LLP
1850 M Street, N.W., Suite 800
Washington, D.C. 20036
Telephone: (202) 263-4332
Fax: (202) 263-4352

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On 12 November 2004, by Suzannah K. Sundby

Signed: